snapmaker

PLA Rainbow Filament

Technical Data Sheet



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1 Filament Introduction

Snapmaker PLA Rainbow Filament transitions smoothly through shades of cyan, purple, pink, yellow, green, and more in a single spool, with a soft matte finish that gives prints a refined look. One full rainbow color cycle uses approximately 200 g of filament. Depending on filament usage, model geometry, and print settings, prints may show a partial gradient or the full rainbow. As the starting color, filament usage, and infill density shape the final gradient, even the same model can feature different color patterns, giving each print its own unique character.

2 Specifications

Subjects	Data
Diameter	1.75 ± 0.03 mm
Net Filament Weight	1kg
Length	337 m
Spool Material	Cardboard Spool
Spool Size	Diameter: 200 mm; Height: 66 mm

3 Recommended Printing Settings

Subjects	Data
Drying Settings Before Printing	55°C, 6 h
Printing and Storage Humidity	< 20% RH (Sealed, with Desiccant)
Nozzle Size	0.2, 0.4, 0.6, 0.8 mm
Nozzle Temperature	190–240°C
Bed Type	Textured PEI Plate, Smooth PEI Plate, Graphic Effect Steel Plate
Bed Surface Preparation	Glue
Bed Temperature	25–70°C
Cooling Fan	100%
Printing Speed	< 300 mm/s

(continued)

Subjects	Data
Retraction Length	0.4–0.8 mm
Retraction Speed	20–30 mm/s
Chamber Temperature	25–45°C
Max Overhang Angle	60°
Max Bridging Length	≤ 30 mm
Support Material	Support for PLA

Printing Tips

1. Drying & Storage

- **Pre-Drying:** The filament has low moisture sensitivity and generally does not require drying. However, pre-drying is recommended for optimal print results. The recommended setting is 55°C for 6 hours.
- **Storage:** When not in use, store the filament in a dry place away from direct sunlight to maintain consistent print quality.

2. Printing

- **Adjusting the Color Gradient:** A full rainbow color cycle uses approximately 200 g of filament. The range of colors and gradient effect in your print depend on how much filament is used. You can change how colors are distributed across your model by choosing a different starting color or adjusting the infill density.

4 Properties

Physical Properties

Subjects	Testing Methods	Data
Density	ISO 1183, GB/T 1033	1.31 g/cm³ at 23°C
Melt Index	210°C, 2.16 kg	14–20 g/10 min
Melting Temperature	DSC, 10°C/min	162.6°C
Glass Transition Temperature	DSC, 10°C/min	60.6°C
Decomposition Temperature	TGA, 20°C/min	N/A
Crystallization Temperature	DSC, 10°C/min	N/A
Vicat Softening Temperature	ISO 306, GB/T 1633	62.7°C
Heat Deflection Temperature	ISO 75, 1.8 MPa	52°C
Heat Deflection Temperature	ISO 75, 0.45 MPa	57.8°C
Saturated Water Absorption Rate	23°C, 70% RH	0.36%

Mechanical Properties

Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	1997±64 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	1615±54 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	23.2±0.5 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	12.2±0.7 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	27.8±2.4%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	0.9±0.1%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	2209±75 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	N/A

(Continued)

Bending Strength (X-Y)	ISO 178, GB/T 9341	40.4±1.1 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	N/A
Impact Strength (X-Y)	ISO 179, GB/T 1043	6.7±0.5kJ/m²
Impact Strength (Z)	ISO 179, GB/T 1043	N/A

Other Physical and Chemical Properties

Subjects	Data
Odor	Odorless
Composition	Polylactic Acid
Skin Hazards	Non-Hazardous
Chemical Stability	Stable under normal conditions
Solubility	Insoluble in Water
Resistance to Acid	Resistant to Weak Acid
Resistance to Alkali	Non-Resistant
Resistance to Organic Solvent	Non-Resistant
Resistance to Oil and Grease	Fair
Flammability	Flammable
Combustion Products	Water, Carbon Oxides
Odor of Combustion Products	Odorless

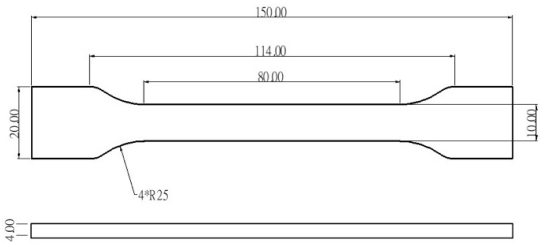
5 Specimen Test

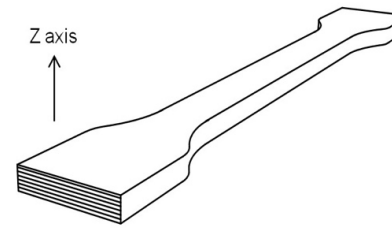
Specimen Printing Conditions

Subjects	Data
Nozzle Temperature	230°C
Bed Temperature	55°C
Printing Speed	50 mm/s
Infill Density	100%

Based on 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters.

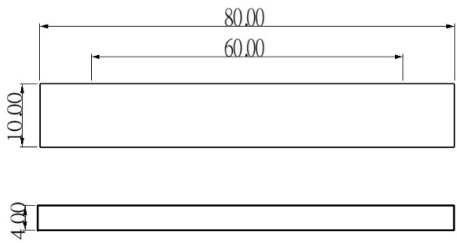
Tensile Testing Specimen

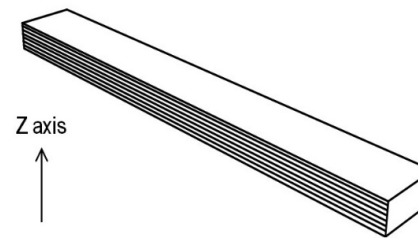




ISO 527, GB/T 1040

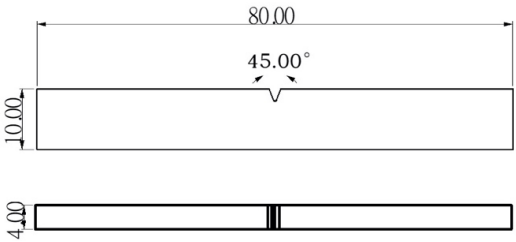
Flexural Testing Specimen

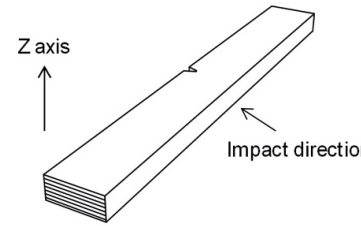




ISO 178, GB/T 9341

Impact Testing Specimen

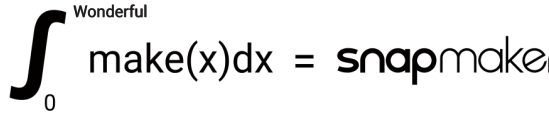




ISO 179, GB/T 1043

6 Disclaimer

The performance and printing parameters of the aforementioned filaments are obtained by Snapmaker through testing filament samples with sample 3D printers. All data provided is for reference and comparison purposes only, and does not constitute design specifications or any warranty of quality. Actual 3D printing quality and final part performance are subject to various factors including, but not limited to, printer equipment, model design, environmental conditions, and printing parameters. Users shall independently evaluate the compliance and safety of printed models and finished parts, including legal compliance, application safety, and structural reliability. Snapmaker shall not be held liable for any direct or indirect losses arising from the use of the aforementioned filaments, including equipment damage, print failure, personal injury, and property damage.



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